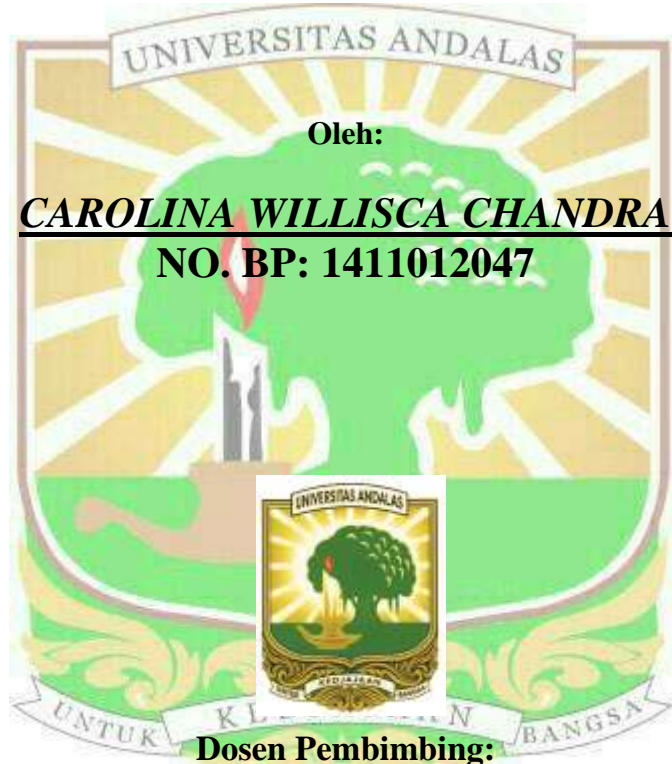


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*FREEZE-DRYING* DEKOKTA BATANG BROTOWALI  
(*Tinospora crispa*) TERHADAP KULTUR LEUKOSIT  
MANUSIA SECARA *IN VITRO***

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# UJI SITOTOKSIK TINOKRISPOSID DAN HASIL *FREEZE-DRYING* DEKOKTA BATANG BROTOWALI (*TINOSPORA CRISPA*) TERHADAP KULTUR LEUKOSIT MANUSIA SECARA *IN VITRO*

## ABSTRAK

*Tinospora crisa* telah banyak digunakan sebagai obat tradisional secara turun temurun. Tinokrisposid adalah furanoditerpen glikosida ( $C_{27}H_{36}O_{11}$ ) yang memiliki rasa pahit dan diisolasi dari ekstrak metanol *Tinospora crisa*. Dari penelitian sebelumnya, diketahui tinokrisposid juga memiliki berbagai manfaat. Namun, keamanan dari penggunaan tinokrisposid dan dekokta batang *Tinospora crisa* terhadap sistem pertahanan tubuh manusia belum diketahui. Tujuan dari penelitian ini adalah untuk mengetahui efek sitotoksik dari tinokrisposid dan dekokta batang *Tinospora crisa* terhadap leukosit manusia. Uji sitotoksik dilakukan menggunakan 3-(4,5-dimetiltiazol-2-il)-2,5-difeniltetrazolium bromida (uji MTT) dan diukur dengan spektrofotometri ultraviolet-visibel pada panjang gelombang 570 nm. Uji sitotoksik tinokrisposid dilakukan pada konsentrasi interval 100, 200, 400, 600, 800, 1000  $\mu\text{g/mL}$ . Sementara itu, dekokta batang *Tinospora crisa* diuji pada konsentrasi interval 100, 400, 1000, 1600, 2000  $\mu\text{g/mL}$ . Ada korelasi linear antara konsentrasi tinokrisposid dan dekokta batang *Tinospora crisa* dengan persentase viabilitas leukosit, dengan koefisien korelasi berturut-turut adalah 0,987 dan 0,941. Nilai  $IC_{50}$  Tinokrisposid adalah 630,120  $\mu\text{g/mL}$  dan nilai  $IC_{50}$  dari dekokta batang *Tinospora crisa* adalah 3531,81  $\mu\text{g/mL}$ . Dari uji sitotoksik, dapat disimpulkan bahwa tinokrisposid dan dekokta batang *Tinospora crisa* tidak sitotoksik bagi sel leukosit.

**Kata kunci:** tinokrisposid, *Tinospora crisa*, sitotoksik, kultur sel leukosit, MTT assay.



# CYTOTOXIC TEST OF TINOCRISPOSIDE AND FREEZE-DRIED AQUEOUS EXTRACT OF TINOSPORA CRISPA AGAINST HUMAN LEUCOCYTE CULTURE BY *IN VITRO* METHOD

## ABSTRACT

*Tinospora crispa* has been widely used as a traditional medicine for generations. Tinocrisposide is a furanoditerpene glycoside ( $C_{27}H_{36}O_{11}$ ) that has bitter taste which isolated from the methanolic extract of *Tinospora crispa*. Based on previous research, it has been known that tinocrisposide also has various benefits. However, the safety use of tinocrisposide and the freeze-dried aqueous extract of *Tinospora crispa* against the human body's defense system hasn't been known yet. The aim of this study is to know the cytotoxic effect of tinocrisposide and the freeze-dried aqueous extract of *Tinospora crispa* against human leucocyte cells. Cytotoxic activity was performed using 3-(4,5- dimethyl thiazol- 2- il)-2,5- diphenyltetrazolium bromide (MTT assay) and quantified with ultraviolet-visible spectrophotometry at the wavelength,  $\lambda$  570 nm. The cytotoxic test of tinocrisposide was conducted in the interval concentrations of 100, 200, 400, 600, 800, 1000  $\mu\text{g/mL}$ . Meanwhile, the freeze-dried aqueous extract of *Tinospora crispa* was assessed in the interval concentrations of 100, 400, 1000, 1600, 2000  $\mu\text{g/mL}$ . There was a linear reciprocal correlation between the interval concentrations of tinocrisposide and freeze-dried aqueous *Tinospora crispa* stem with leucocyte viability percentage, with the coefficient correlation 0.987 and 0.941, respectively. Tinocrisposide's  $IC_{50}$  value was 630.120  $\mu\text{g/mL}$  and the  $IC_{50}$  value of the freeze-dried aqueous extract was 3531.81  $\mu\text{g/mL}$ . From the cytotoxic evaluation, it can be concluded that tinocrisposide and the freeze-dried aqueous extract of *Tinospora crispa* were not toxic to leukocyte cell culture.

**Key Words:** tinocrisposide, *Tinospora crispa*, cytotoxic, leukocyte cell culture, MTT assay.